specific constituents of permitted and proposed discharges, but few known "hot spots" have been identified to date. A preliminary survey of toxic contaminants in the sediments is currently underway.

C. 2. Identification of Probable Causes

Human activities in the Albemarle-Pamlico Estuarine System include agriculture, forestry, residential and commercial development, mining, national defense, recreational and commercial fishing, tourism and recreational development, and wildlife hunting and preservation. All these activities generate waste to be disposed of and/or changes in the landscape and land-use. During the time-frame in which the environmental concerns outlined above have become more apparent, human activities have undergone major changes.

C. 2. a. Agriculture Agriculture is the largest industry in the 28 counties of the central and northern Coastal Plain surrounding the Albemarle-Pamlico Estuarine System. These counties generate an annual return of over $1.5 billion from agriculture. The highly productive soils represent 45% of the state's cropland and produce a large portion of the state's swine, chicken, corn, soybean, tobacco, potato, wheat and peanut crops.

In the lower areas east of the Suffolk Scarp, crops are dominated by corn, wheat and soybeans. Farming activities are highly mechanized, and each individual operation is much larger than the statewide average. Soils require extensive drainage for most agricultural operations; consequently, large acreages are drained into networks of canals eventually reaching an estuary.

Concerns about agricultural impacts include (1) nutrient loading of freshwater, particularly from animal wastes and fertilizers applied to the fields; (2) increased freshwater peak flows into saline primary nursery areas; (3) degradation of water bodies from sedimentation; and (4) pathogenic microbes in shellfish areas. The degree to which agriculture serves as a probable cause depends upon many factors, including the weather, specific crops grown and the application of Best Management Practices (BMP's). BMP's recommended for the Coastal Plain control soil erosion, sediment delivery, animal waste disposal, fertilizer runoff and drainage water management, and have all been demonstrated to reduce the impact of agriculture on water quality.

Agriculture acreage is expected to remain relatively constant in the region during the foreseeable future. Relative mixes of crops and agriculture activities will vary interannually depending upon economics and environmental conditions. Animal (particularly hogs and chickens) production is expected to continue to increase at a rate similar to that of recent years. But, the use of Best Management Practices should reduce the potential for nonpoint pollution, particularly with the impetus given BMP implementation by the N. C. Agriculture Cost Share Program in all counties of the area. Effective water management is proving to be very attractive to farmers and its use should increase.

C. 2. b. Commercial Forestry Forest land of the area produces raw materials for a diverse forest products industry. The forests also function as wildlife habitat, recreational areas, and as a filter and surge control mechanism for fresh waters entering the sounds.

Analysis of recent U. S. Forest Service woodland inventories and information from the N. C. Division of Forest Resources reveal the following trends in forestry activities: